

**COW CREEK WATER ASSOCIATION (PWSNO 1110007)
SOURCE WATER ASSESSMENT REPORT**

September 17, 2002



**State of Idaho
Department of Environmental Quality**

Disclaimer: This publication has been developed as part of an informational service for the source water assessments of public water systems in Idaho and is based on data available at the time and the professional judgement of the staff. Although reasonable efforts have been made to present accurate information, no guarantees, including expressed or implied warranties of any kind, are made with respect to this publication by the State of Idaho or any of its agencies, employees, or agents, who also assume no legal responsibility for the accuracy of presentations, comments, or other information in this publication. The assessment is subject to modification if new data is produced.

Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. This assessment is based on a land use inventory inside the recharge area for the source, sensitivity factors associated with the watershed characteristics and construction of the intake, and historic water quality.

This report, *Source Water Assessment for Cow Creek Water Association* describes the springs, the zone of water contribution, and potential contaminant sources located within the watershed. This assessment, taken into account with local knowledge and concerns, should be used as a planning tool, to develop and implement appropriate protection measures for this source. **The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

A ground water spring located at the base of a small watershed provides drinking water for the Cow Creek Water Association. The water association has experienced no water quality problems other than infrequent instances of bacterial contamination in the distribution system. The spring structure is properly constructed and maintained, and the watershed is mostly undeveloped. A susceptibility analysis of the spring concluded that it has a low risk of becoming contaminated.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

Cow Creek Water Association, drinking water protection activities should focus on maintaining the watershed. Because some of the recharge area for the springs is outside the direct jurisdiction of Cow Creek Water Association, partnerships with private landowners and public agencies with administrative authority in the area should be established to ensure that any land use changes in the watershed do not degrade it. Source water protection activities should be aimed at long-term management strategies to counter any future contamination threats.

A community with a fully developed source water protection program will incorporate many strategies. For assistance in developing protection strategies please contact your regional IDEQ office or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR COW CREEK WATER ASSOCIATION

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted.

It is important to review this information to understand what the ranking of this source means. A map showing the delineated source water assessment area, and the inventory of significant potential sources of contamination identified within the delineated area are included. Significant potential contaminant sources found in the delineation are listed and the worksheet used to develop the assessment also is attached.

Background

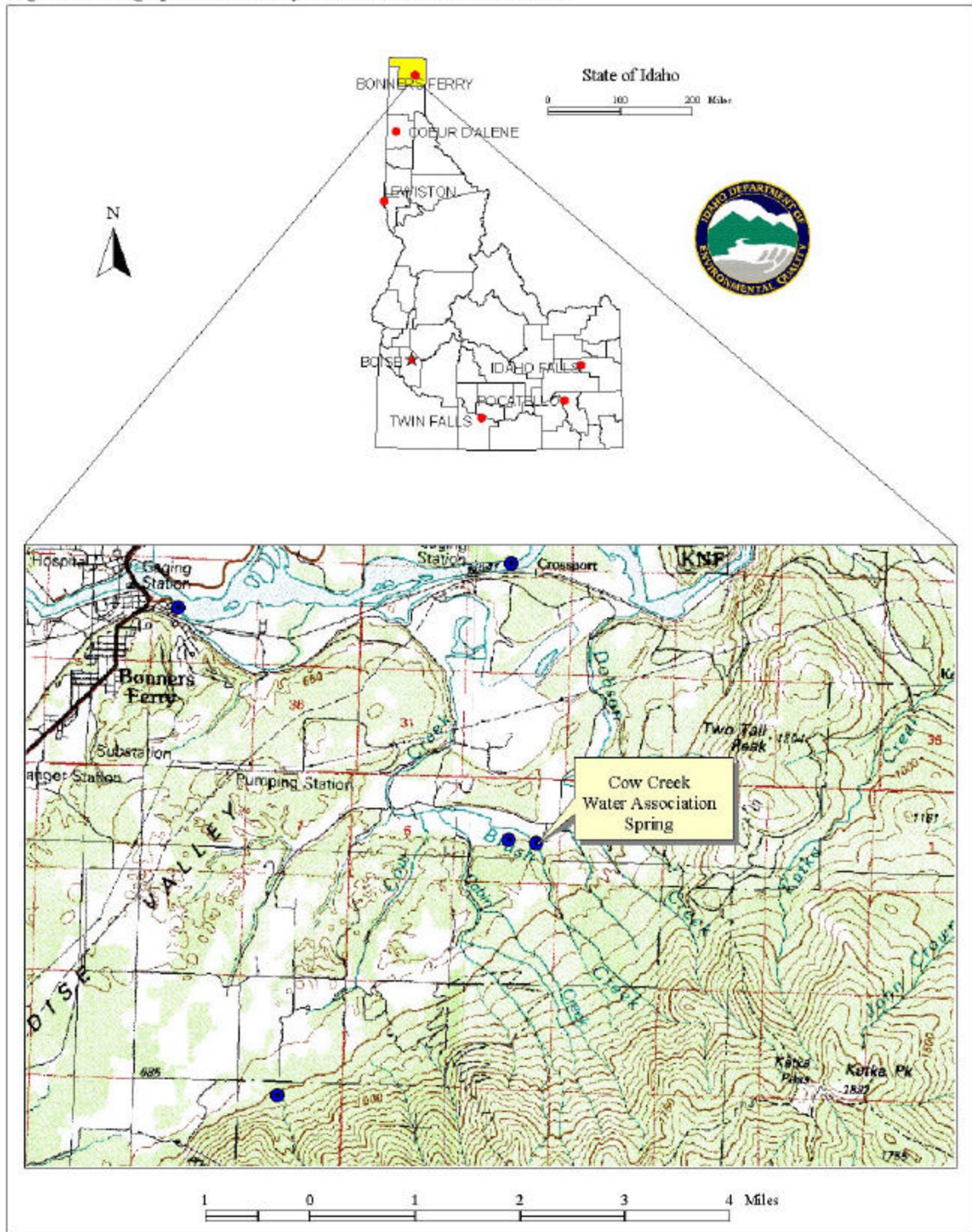
Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area and sensitivity factors associated with the intakes and watershed characteristics.

Level of Accuracy and Purpose of the Assessment

Since there are over 2,900 public water sources in Idaho, time and resources to accomplish the assessments are limited. All assessments must be completed by May of 2003. An in-depth, site-specific investigation of each significant potential source of contamination is not possible. **Therefore, this assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply. The Idaho Department of Environmental Quality (IDEQ) recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. IDEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a source water protection program should be determined by the local community based on its own needs and limitations. Source water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Figure 1. Geographic Location of Cow Creek Water Association



Section 2. Conducting the Assessment

The Cow Creek Water Association water system serves 11 residential connections in a rural neighborhood about 4 miles south east of Bonners Ferry, Idaho (Figure 1). The public drinking water source for Cow Creek Water Association is a spring at the base of a 961-acre watershed. An analysis completed in 1993 determined that the spring source is ground water without surface water influence.

Defining the Zones of Contribution--Delineation

The delineation process establishes the physical area around a public water source that becomes the focal point of the assessment and source water protection activities. For Cow Creek Water Association the boundaries of the small watershed above the springs as they appear on a 7.5-minute USGS topographic map are the boundaries of the delineation. Figure 2 shows the location of the spring, and the watershed boundaries.

Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act in sufficient quantities that a release could threaten drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of surface water contamination. DEQ conducted a contaminant inventories in the source water assessment areas by identifying and documenting potential contaminant sources through the use of computer databases and Geographic Information System (GIS) maps.

It is important to understand that a release may never occur from a potential contaminant site. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. When a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation.

116 13' 29" 116 12' 116 10' 29"

48 37' 30" 48 39'

KANIY NATIONAL FOREST

0.5 0 0.5 1 1.5 2 2.5 Miles

Legend

Wellhead	Recharge Point	Recharge Point
Time of Travel	SARA Title III Site (SEPCRA)	Injection Well
0-3 Years	UST Site	Group 1 Site
3-6 Years	UST Site	Group 2 Site
6-10 Years	UST Site	Group 3 Site
Recharge Inventory	UST Site	Group 4 Site
Time Release Inventory	UST Site	Group 5 Site
CRS (LIS) Site	UST Site	Group 6 Site
CRS (LIS) Site	UST Site	Group 7 Site
CRS (LIS) Site	UST Site	Group 8 Site
CRS (LIS) Site	UST Site	Group 9 Site
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CRS (LIS) Site	UST Site	

Section 3. Susceptibility Analysis

The potential for contamination of a source due to inorganic chemicals, organic chemicals or microbes is ranked high, moderate, or low risk according to the following considerations: physical integrity and construction of the intake, land use characteristic, and water sampling history. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. A high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each intake is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. The following summaries describe the rationale for the susceptibility ranking. The susceptibility analysis worksheet for your system is on page 11 of this report.

Intake Construction

The ability of an intake to protect the water it collects from contaminants is directly affected by the way it is constructed and maintained. Low scores on this portion of the susceptibility analysis imply an intake better able to safeguard the source. An infiltration gallery consisting of 6-inch perforated pipe buried in the hillside behind the pumphouse collects water from the spring. No defects in the intake structure were noted when the system was inspected in 2001. The sanitary survey report recommended venting the reservoir, installing a flow meter on the pump and using an approved chlorine solution in the chlorine injection equipment.

Potential Contaminant Sources, Land Use, Historic Water Quality

Other than naturally occurring sources of bacteria and sediment, no potential contaminants were identified in the area delineated for the spring. Undeveloped woodland and meadow is the dominant land use in the Cow Creek Water Association source water protection zone. A small creek is located about 100 feet downhill from the springs.

Other than sporadic instances of microbial contamination, probably due to breaks in the distribution system, Cow Creek Water system has experienced no water quality problems. Synthetic organic chemicals and volatile organic chemicals have never been detected in water from the spring. Testing results show nitrate, sodium and sulfate present in very low concentrations. No other inorganic constituents have been detected.

Final Source Ranking

The Cow Creek Water Association spring's susceptibility to all classes of regulated contaminants is low. The Susceptibility Analysis worksheet on page 11 shows how the spring was scored.

Section 4. Options for Source Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

While an effective source water protection program is tailored to the particular local source water protection area, there are strategies every system should employ. Maintaining full compliance with *Idaho Rules for Public Drinking Water Systems*, for example, is an excellent place to begin protection efforts. Next, every water system should develop an emergency response plan. There is a simple fill-in-the-blanks form available on the DEQ website to guide systems through the emergency planning process.

For Cow Creek Water Association, maintaining the watershed is essential for maintaining water quality. Because parts of the watershed are outside the direct jurisdiction of Cow Creek Water Association, it will be important to establish partnerships with the Forest Service and private landowners to regulate land use changes, timber harvesting or agricultural practices that could influence water quality. Due to the relatively short time involved with the movement of water in the small recharge zone for the springs, source water protection activities should be aimed at both short-term and long term management strategies.

Assistance

Public water suppliers and others may call the following IDEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the IDEQ office for preliminary review and comments.

Coeur d'Alene Regional IDEQ Office (208) 769-1422

State IDEQ Office (208) 373-0502

Website: <http://www.deq.state.id.us>

References Cited

Idaho Department of Agriculture, 1998. Unpublished Data.

Idaho Division of Environmental Quality, 1994. Ground Water and Soils Reconnaissance of the Lower Payette Area, Payette County, Idaho. Ground Water Quality Technical Report No. 5. Idaho Division of Environmental Quality. December 1994.

EPA (U.S. Environmental Protection Agency), 1997, State Methods for Delineating Source Water Protection Areas for Surface Water Supplied Sources of Drinking Water, EPA 816-R-97-008, 40p.

U.S. Government Printing Office, 1995, Code of Federal Regulations, 40 CFR 112, Appendix C-III, Calculation of the Planning Distance

Idaho Department of Environmental Quality, 1999, *Protecting Drinking Water Sources in Idaho*.

Attachment A

Cow Creek Water Association Susceptibility Analysis Worksheet

Susceptibility Analysis

Public Water System Name : COW CREEK WATER ASSOCIATION

Source: Spring

Public Water System Number : 1110007

8/8/02

1. System Construction		Score			
Intake structure properly constructed	YES	0			
Infiltration gallery	YES	0			
Total System Construction Score		0			
2. Potential Contaminant Source / Land Use		IOC Score	VOC Score	SOC Score	Microbial Score
Predominant land use type (land use or cover)	UNDEVELOPED	0	0	0	0
Farm chemical use high	NO	0	0	0	
Sources of class II or III contaminants or Microbials (Score = Number of Sources X 2)	NATURALLY OCCURRING MICROBIAL CONTAMINANTS	0	0	0	2
Agricultural lands within 500 feet of intake	NO	0	0	0	0
Sources of turbidity in the watershed	NA--SPRING IS CLASSED AS GROUNDWATER	0	0	0	0
Total Potential Contaminant Source / Land Use Score		0	0	0	2
3. Final Susceptibility Source Score		0	0	0	2
4. Final Source Ranking		Low	Low	Low	Low

The final scores for the susceptibility analysis were determined from the addition of the Potential Contaminant Source/Land Use Score and Source Construction Score.

Final Susceptibility Ranking:

0 - 7 Low Susceptibility
 8 - 15 Moderate Susceptibility
 > 16 High

Susceptibility

POTENTIAL CONTAMINANT INVENTORY

LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

BML (Business Mailing List)– This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as Superfund is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

Closed Or Open UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.